In April, 1932, I described a method for operative reduction of fractures of the femoral neck under the title of "Trochanteric Transplantation in the Treatment of Fractures of the Neck of the Femur." The hip joint is exposed by a straight Langenbeck incision, extending from the iliac crest downward over the trochanter laterally along the shaft of the femur to a point three inches below the trochanter. The gluteus medius muscle is incised longitudinally, and the capsule is split in its entire length along the superior border. A trochanteric bone graft three and one-half inches in length, and one-half inch in width, is removed from the external lateral surface of the femur. This graft includes the tip of the trochanter and three inches of the lateral mid-portion of the femur. The removal of the bone graft, and the splitting of the capsule superiorly, afford an excellent view of the femoral head and the entire femoral neck. Retraction of the capsule is accomplished best by the use of a MacAusland bone-skid in front and behind the neck. There is a weak point in the cortical bone of the trochanteric end of the bone graft, approximately one inch from the tip of the trochanter. I have, therefore, been discarding the tip of the trochanter and utilizing the remaining three inches of the femoral graft which is generously supplied with a firm cortex and highly vascularized spongy bone and endosteum. Following reduction of the fracture by manipulation, the bone graft is introduced under the eye through a central drill hole. The tip of the trochanter, previously removed, is replaced in its original bed. I particularly emphasize the necessity of removing the mesial portion of the tip of the trochanter in order to obtain an unobstructed view along the entire neck of the femur through this lateral approach. This method eliminates blind pegging.

The Whitman method continues in my hands to be the method of choice in the treatment of intracapsular fractures of the neck of the femur. I have had no experience, whatever, with the use of nails, wires, or other foreign material. Bone transplantation seems to have completely justified itself in the treatment of fractures in other parts of the skeleton, and the disadvantages of foreign material I consider regarded as ancient history. We should add to and not subtract from the reparative ability of a fracture; and this, I believe, a bone graft does, provided it is adequately utilized.

I find it extremely difficult to decide which cases of intracapsular fracture justify routine primary operation. I am inclined to attempt a Whitman reduction in all patients, checking the reduction by anteroposterior and lateral x-rays, and intervening by open operation if for any reason I fail to maintain the reduction, or if x-ray signs of necrosis of the femoral head appear. The advantages of open operation by the trochanteric bone graft method may be summarized as follows:

1. Early and accurate replacement of displaced fragments with assurance that no interposition of tissue exists.

2. Bridging of the fracture line with an autogenous bone graft, providing firm internal fixation, the graft also acting as a calcium source for the healing granulation tissue.

3. Early reëstablishment of blood supply between the head and neck of the femur, in an area where blood supply is minimal.

I heartily endorse Doctor Bunnell's dictum that from six to twelve months of postoperative fixation and guarded weight-bearing may be necessary before firm bony union can be demonstrated.

Doctor Bunnell (Closing).—Treatment of this fracture is still in the stage of development; therefore, the choice of method cannot as yet be standardized. We now know that the problem comprises both fixation of fragments and local blood supply. Many new procedures are being tried, but only those will last that conform with the basic principles involved. Our method must be simple and safe, and must set, hold and nourish.

The use of foreign bodies simplifies fixation, but is objectionable physiologically. Perfect fixation, preferably by autogenous bone graft, minimizes the gamble of the fate of the head and neck.

Ellis Jones's method of graft has in its favor simplicity. The strength and fit of the graft, and the vision afforded, will be deciding factors in evaluating it with the Albee method.

Grafts are justified by the seriousness of the prognosis, but efforts should be directed toward simplifying the procedure. In poor risks we must resort to more conservative, less ideal methods, and accept a greater percentage of failures.

THE MENTALLY DEFECTIVE CHILD

By Thomas B. Cunnane, M. D.
Los Angeles

Discussion *by Glenn E. Myers, M.D., Compton; William M. Happ, M.D., Los Angeles; Edward R. Cox, M.D., Los Angeles.*

IN writing of my impressions gained in the study of the mentally defective child, I am guided by the desire to stimulate the interest of the average physician. I have been fortunate in having the opportunity to observe and treat this type of child in a private school during the last twelve years.

TYPES OF DEFECTIVES

In order to write more clearly, I will attempt to correlate the more common types of defectives. Strictly speaking, the term "idiocy" is used to imply the lowest type of mental impairment. However, the term is also used to include any type of mental feebleness due to disease or defect of the brain, congenital or acquired. The variations in degree are indicated by the expressions:

Idiocy; imbecility; feeble-mindedness (morons); backward children or defects.

The variations are: Hydrocephalic (lues); microcephalic; paralytic (poliomyelitis, spastic paraplegia); epileptic; traumatic; meningitic; cretin; mongoloid; sensorial (congenital or early loss of two such senses as sight or hearing); pyschological defect; amaurotic (family idiocy. Very rare. Baby is born normal, but at the age of four to ten months becomes weak and stupid, and blindness occurs due to optic atrophy); idiot savant (precocious in one line).

Briefly, the common causes of idiocy are:

Heredity

1. Familial tendency. Like begets like. Certain types of idiocy have been traced through many generations.
2. Syphilis, alcoholism, tuberculosis.
3. Intermarriage.
4. Disproportion in ages or senility.

Acquired

1. Instrumental delivery, or long delivery with pressure.
   Asphyxia.
   Cerebral hemorrhage of new-born.
2. Meningitis.
3. Poliomyelitis.
4. Fevers.
5. Trauma.

It is impossible to determine the number of mentally defective children in the State of California, as there is not a well-developed plan for central registration. In Massachusetts a plan for

the central registration of all mental defectives was developed in 1922. Up to 1930, 28,754 cases were registered, or 749 per every 100,000 population.

CLINICAL MATERIAL FOR THIS STUDY

The school referred to in this paper has had an average of forty-five of these children attending for the past twelve years. The highest attendance has been seventy-five. The majority of the children room and live in the school; there are some day pupils. Their actual ages range from five to fifteen years. Their mental ages range from 0 to fifteen years. We have attempted to arrange them in the classrooms according to their mental abilities and also their sizes. Thus, idiots with a mental age of 0 to two years; imbeciles, three to seven years; morons, seven to twelve years; and the psychological defect or behavior problem.

The purpose of the school is primarily to instil habit in the life of the child. Many of the more inferior types, when they first arrived in the school, have lacked training even in the fundamental habits, such as going to the toilet. They may be fourteen years old and still be wearing diapers. Constant repetition of an act finally impresses the most inferior types. Many at first have no idea of manners at the table, not knowing how to use any implement other than their fingers. Consequently, they are very slovenly and dirty. This problem, surprisingly, is easily settled. The children all eat at four large tables in one large room. They are trained primarily to keep their hands on their laps until after "grace" is said, and then they use their spoon or knife or fork, according to their abilities; and the children that are better equipped mentally are given the responsibility of teaching the other children. There is always a competent instructress at the head of the table. Even the most inferior types will mimic, if an action is repeated constantly within their range of observation.

Music is a frequent accompaniment in the teaching of the children. Their attention is almost always held by music, and it is surprising how quickly many of them learn to hum a tune even though they are mutes. They also readily learn simple dance steps; and on various holidays they are taught to participate in little folklore plays, and it would be difficult for the casual observer to say that they were mentally defective.

The teachers for this type of child must have the greatest patience, and they must be extremely clever in presenting their subject, as these children lack concentrative ability proportionate to their degree of mentality.

INCIDENCE OF INFECTIONS

The incidence of infections is supposed to be higher in this type of child. The mongoloids especially have very large tonsils and adenoids. Many of the children show various signs of food deficiencies, *i. e.,* ricketic bosses, rosary, red eyelids, dry, scaly skin, and protuberant abdomen. Respiratory infections are common. Extreme dental decay is frequently seen. We impress on the parents primarily the importance of removing their tonsils and adenoids, and having their teeth repaired. Cod-liver oil with viosterol is routine with most of the children; also sun baths and rest for the more poorly nourished. They are furnished a well-mixed, easily digestible diet with plenty of fruit, milk and eggs, and can eat all they wish three times a day, with milk in the afternoon. Any child that develops a cold is kept in bed and isolated. All children are routinely protected against diphtheria and smallpox. An ample bowel movement is insisted upon each day. Mineral and castor oil is used freely. Obstipation in the newly admitted pupil is common. One child, admitted with a hemiplegia due to a birth injury, was suffering from four to eight epileptiform convulsions daily. He was found to be subject to the most severe type of obstipation, and when this was corrected the convulsions ceased and in the past year have not recurred. This same child could hardly walk when admitted, due to his one-sided paralysis. The heel and sole of the shoe on the affected side were raised, and this simple procedure has allowed him not only to walk, but to take care of himself in play with the other children.

Some of the more inferior types must be watched carefully to prevent them from eating gravel or any other foreign object that they can swallow.

MORTALITY

In the past twelve years we have had seven deaths. One from status epilepticus, three from cerebral type of poliomyelitis, one from a burn when the child turned scalding water on herself in the bath tub, and two from pneumonia. Measles, whooping-cough, and scarlet fever have been no more prevalent than in any group of normal children of the same number. The cerebral type of poliomyelitis was ushered in by a child that had had his tonsils removed; and on the fourth postoperative day he developed uncontrollable vomiting. Finally, there was paralysis of the muscles of deglutition and the respiratory muscles, and death. The other two cases occurred within two weeks following this case, and were very similar. The epileptic patient was in a state of convulsions for eighty hours prior to death and was not relieved by chloroform, sodium amytal, spinal puncture, nor magnesium sulphate. There have been two empyema cases in mongoloids that made an uneventful recovery with the closed type of drainage. There have been no acute abdominal surgical cases. Those children who go home over the week-end frequently come back with gastro-enteritis and colds.

I have found that the resistance of this type of child depends on his physical fitness and does not differ from that of any other child.

MONGOLOID TYPES

The mongoloid types have formed the largest single groups of defectives in the school. They are easily recognized by their round face, with the flat nasal bridge causing a slant and narrowing of the eyelids. Their hands and feet are pudgy and their abdomen is protuberant. There is a

separation between their great and second toes. Their tongue and lips are thick, and they enunciate with difficulty. They are invariably happy and amiable, also obedient, and respond surprisingly to instruction. As they grow older, they gradually lose their stigmata; and if they reach the age of adults it is frequently impossible for anyone but a trained observer to distinguish them. In every mongoloid type that I have seen, the characteristic features may be found in some one member of the immediate family: mother or father, brothers or sisters. They seldom develop beyond the stage of a moron, although we have two cases from the school that have gone to college, and one was graduated from Stanford University. They have a better opportunity than the average moron, if they are of the higher type of mongoloid, because of their happy disposition. They resemble very closely the cretin, but the administration of thyroid does them no good, nor does the administration of any other gland preparation aid them. The congenital thymic babies also show many characteristics of the mongoloid, and it is possible that they would develop into a mongoloid if they lived and were not cured by the x-ray. These children are very susceptible to bronchial and head colds.

MORON TYPES

The morons are probably the hardest to deal with because, although they do not do well in school, they are frequently bright enough to make their parents believe that their instructor is showing prejudice. They generally appear normal, and the ordinary person does not realize their limitations. They frequently land in juvenile court because of the difficulty in finding a vocation and recreation of sufficient interest to hold their attention. They should be in a special school, as the community is not a safe place for their development. They are frequently wilful and untrained, subject to temper tantrums, and even dishonest. They learn to use these methods in competition with the normal child. The average mother of a moron is not fitted to train them, and they should truly be considered an institutional type. A definite plan for determination of this child-type and central registration, followed by occupational guidance, would be of great benefit.

SPASTIC PARAPLEGICS

The spastic paraplegics are a pitiable type, righteously receiving one's sympathy. They are easily recognized by their halting, incoördinate gait, as though they were going to fall any moment. We at times see them selling papers on the street, and the average person gives them credit for much less than they really possess mentally. They are often very sweet children, and it is easy to become attached to them on acquaintance. Mentally they are normal. The condition is generally hereditary, although it may be acquired due to cerebral injury at birth. The hereditary type has been traced through five generations, the individual affected showing marked similarity in all respects. The actual symptoms may not show themselves until the child is twelve or fourteen years old, and only then after an intercurrent infection such as measles. The symptoms, however, may be present from the time that the child attempts walking. Muscular hypertonus and increased reflexes are always noted; therefore the spastic gait due to leg rigidity. There are no sensory or sphincter difficulties. There is frequently a spasmodic condition of the muscles of the face and neck, and difficulty in speech. The columns of Gall and the direct cerebellar tracts have been found degenerated. Treatment is of no value.

TRUE EPILEPTICS

The true epileptic may be either very easy or very discouraging to treat. The convulsions frequently can be controlled by luminal or bromid combinations, but the prevention of the convulsions by dehydration or ketosis eventually produces a state of malnutrition and decreased resistance, and the child frequently succumbs to a contagious or respiratory infection. Continued use of sedatives gradually produces a mental fogginess. Epileptiform convulsions occur in some mentally deficient children solely from improper elimination. There is also a type due to calcium deficiency, and cured by the administration of parathyroid gland and calcium. Some of the hemiplegias and paraplegias have convulsions, the result of the cerebral hemorrhage they suffered at birth. Then there is the congenital, luetic type of epilepsy frequently associated with childhood paresis.

OTHER TYPES

The obese child with the associated hypogonadism, pituitary derangement and mental stupidity must be differentiated from the cretin. This type of child has the broad hips and narrow shoulders, girdle adiposity and excessive mammary development. It is common to see a certain degree of this type in mentally normal boys around puberty. The mentally subnormal child may be obese because of a voracious appetite, and in the school he will lose weight on the ordinary diet sufficient for a child of his age. The pituitary type reacts satisfactorily to thyroid, diet, and antuitrin.

We have had no cases of diabetes in any of the children of this school, nor have we been bothered with allergic manifestations.

The true idiot may be either lethargic or of a highly nervous type. The latter may be very difficult to control, as physically he may be very strong and must be watched carefully to prevent accidental injury to the other children. Teaching both the habit of cleanliness, body care and manners at the table is an achievement with this type of child. The low imbecile type of idiot may be taught to do odd chores around the house. We castrate all of these children when permission is obtainable.

The so-called psychological defect has been the subject for many books and treatises. They are the "behavior problems," and include those that are defective in morals or character. The cause for this type of defect may often be traced to improper parental influence, catering to the child's whims, attempting to completely accept their bur-

dens, misdirection, and overindulgence. The natural independence and ability of the child is stunted. They develop fits of anger and ulterior motives in an attempt to get away from their parental oppressors. As they grow worse in their development, the parents become more impossible, continuously harping of the child's defects in front of the child and to all who will listen. Possibly it is the parents of this type of child who should be in a school.

Then there is the "behavior problem," the direct result of his environment. This child may be mentally above normal, possibly the head of a gang of boys. They become more and more bold with their pranks, until they are beyond the law. This type of child is not necessarily from the poorer districts. Especially in the smaller communities all the boys may be included if they are not directed in their recreation. The value of community centers, Boy Scout organizations, and properly supervised outdoor activities in the public schools cannot be overemphasized.

IN CONCLUSION

In conclusion, I wish to state that I have purposely tried not to be too scientific nor to deal in statistics. My purpose in writing this paper is to present the problem of these less fortunate children in such a way that the general physician may give more attention to them, so that he may aid in directing the unfortunate parents. There is no more distressing problem than to be the parent of a mentally defective child. There should be a more definite plan developed for segregating and orientating these children according to their mental abilities.

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DISCUSSION

GLENN E. MYERS, M.D. (Compton Sanitarium, Compton).—Children defective in intelligence may be roughly divided into two classes of trainability: (*a*) those that are not trainable, and (*b*) those that are trainable.

Permanent residence in an institution that is essentially custodial in character is usually necessary for the first-mentioned group. The best that can generally be accomplished with these children is to effect some degree of habit training, which will make their care easier. Even in this group one sees personality reactions that are characteristic of the individual child, but little can be done to improve such undesirable personality reactions. It is well to attempt to remedy physical factors that may contribute unfavorably to personality reactions. Constipation, for example, is of importance in this respect.

The second group, *i. e.*, those children that are trainable, is much broader than the first-mentioned group. In it one deals with wide variance of intelligence defect and mental retardation, and with complex personality reactions. The higher the degree of intelligence and the more stable and otherwise normal the habitual personality reactions, the better trainable is the subject. Such traits as habitually poor attention, interest and application, may present great difficulty in the training of a child that perhaps has but a slight degree of intelligence defect. The stability of personality reactions has a distinct ratio with the degree of good citizenship effected. One needs not only determine the intelligence quotient to predict the capacity of the child in its adaptabilities to the world, but must carefully analyze its personality reactions and endeavor to eliminate qualities that prevent the child from using its intelligence to full capacity.

Children deficient in intelligence generally fail to develop their full potential capacities in good citizenship if they are made to compete with children of normal intelligence. Their development is generally much better if they are grouped according to their mental abilities. This is generally best done in special classes or schools. In such situation there are fewer failures in competition that discourage the child and stultify its progress, and it may find as much stimulus from success in competing in its special class as do the normal children in their own classes.

This fact was long ago recognized, and led to the excellent system of examining clinics provided in Massachusetts. This system has grown from the initial clinic in 1914 to fifteen traveling clinics at the present time, for examinations and recommendations in the case of retarded and defective children. These clinics are governed by the combined State departments of education and mental disease. The Division of Mental Deficiency of the Massachusetts State Department of Mental Diseases, under the direction of Neil A. Dayton, M. D., has considerably changed the general aspect of the truly distressing problems that are incident to intelligence defect. From 1919 it has been compulsory for the school departments of Massachusetts to refer to these clinics all children three years or more retarded in their classes, and from 1931, children of lesser retardation have been so referred, thus appreciably widening the usefulness of the clinics. Special classes and schools are liberally provided, and good work is done toward training the mentally defective and retarded children to be good citizens within the limits of their intellectual capacities. Such work necessarily entails good personality training as otherwise results would be much less satisfactory.

Doctor Cunnane's effort, through his paper, to stimulate greater interest in California in the better management of the problems of mental deficiency is commendable. It is hoped that it will assist in promulgating the fact that something really can be done for these unfortunates.

WILLIAM M. HAPP, M. D. (925 Pacific Mutual Building, Los Angeles).—The proper management of mentally defective children naturally depends upon the degree of retardation. In general, one recommends custodial care for the idiots (mental age of 0 to 3 years), and constructive, institutional direction for those whose intelligence is sufficient to justify such an outlay. This group includes the imbeciles (mental age 3 to 7 years), and the morons. These children can be taught the essentials of a useful trade, and may show surprising aptitude at manual effort. The group most worthy of effort is the moron class.

Unfortunately, sentimental feeling on the part of the parents often offers a stumbling-block to successful institutional education and care. Too often these handicapped children are left at home, or the parents become very attached to them and do not want to "put them away." The result is usually unsatisfactory from the standpoint of the child, the parents, and other children in the family. In an institution or school, as Doctor Cunnane has so well brought out, the children are in company with mentally equal individuals. They are handled by teachers who understand them, and they are usually quite happy. A school, as Doctor Cunnane has described, therefore, fills a very useful and important place in the care of mentally handicapped children.

Regarding the group known as "spastics," one must remember that these children may not necessarily show mental retardation. Those with normal or moderately subnormal mentality may be taught, by proper orthopedic training, to lead useful lives.

The pediatrician is confronted frequently with the problem of the mentally handicapped child. As he is looked upon as the family adviser, he must face the problem individually and squarely, and will often be gratified with the result.

EDWARD R. COX, M. D. (1052 West Sixth Street, Los Angeles).—I wish to thank Doctor Cunnane for the privilege of discussing this interesting view of his experiences with subnormal children.

Not everyone who has a defective child can afford the care and training supplied by a special school, and charity institutions are full to overflowing. Public school systems in the larger cities usually have special day training schools called "development schools." These, also, are generally full to overflowing. So it is shockingly true that "there is no more distressing a problem than to be the parent of a mentally defective child."

Aside from the obviously mentally defective child there is a large group which may be called a borderline type—the high-grade moron. If anything, this classification is more of a problem. In the home, too, much is expected of him. He is truly misunderstood. Parents sadly shake their heads over his shortcomings or severely chastise his lapses. In school he reaches a stage of understanding just sufficient to be resentful of the demands made upon him. His obstinacy and resentment smoulder, for few higher-type defectives are good natured. Among his playmates he becomes a good follower, and this often leads him, by way of some overt act, to the juvenile court. Here the records sadly relate over and over a sordid list of his escapades.

Many studies have been made on mentally defective children. Nearly all of them conclude that heredity plays a dominant part in its production. Movements are on foot advocating sterilization of defectives on this account. But since such movements depend upon the enlightenment of a prejudiced and generally an unenlightened electorate, this movement must necessarily be delayed. In the meantime whatever the family physician may sympathetically supply in the way of advice and counsel may make the difference between happiness and tragedy among those entrusted to his care.

THE LURE OF MEDICAL HISTORY*

PHARMACIES AND PRESCRIPTIONS OF THE SIXTEENTH CENTURY

By FELIX CUNHA, M. D.
San Francisco

THE old adage, "nothing new under the sun," keeps cropping up so frequently in actual experience that one has to give it credit for more than mere repeated coincidence. This is quite true with reference to the pharmacy or apothecary of the sixteenth century in comparison with our present-day pharmacy, if we exclude those merchandising corners where lunch counters, radios, electric toasters and what not are sold in a so misnamed drug store. But if we allude to the 100 per cent modern prescription pharmacy, a casual glance will show that it differs so little from its parent of three centuries ago that the difference is negligible.

A description of the leading pharmacy of Prague in the early part of the sixteenth century, which was very similar to the pharmacies of other large European cities during this particular time—except, perhaps, as to size and amount of stock on hand—demonstrates that even the location of certain subdivisions of the establishment are almost exactly those of today. Whether this is due to merely blind following of custom by the pharmaceutical profession at large is difficult to say, or whether an apprentice, when he became a pharmacist, kept things in exactly the same place as the teacher who taught him, after he had acquired a place of his own, and thus started an endless chain cannot be more than but guessed. Possibly also because in each pharmacy there was displayed very prominently where the junior pharmacists, apprentices, clerks, etc., could not help but be constantly reminded, a Latin motto, whose English translation was, "Place everything in order, keep each thing in order, and set all things in their proper place."

THE DIVISION OF THE APOTHECARY SHOP

The pharmacy of the sixteenth century consisted usually of a front and back shop, even as today. The front shop had one or more display windows on one side, while on the other sides were shelves, or row upon row of drawers of different depths and sizes, reaching to the ceiling, broken on some one side by a counter.

The back shop contained huge tables on which were large jugs of heavy oils and great barrels or hogsheads of crude herbs in the process of maceration. Today, of course, the drug manufacturer has taken over this particular phase of pharmacy with a claim of lessened production cost because of wholesale mass quantity. Possibly from indifference and laziness on the part of the pharmacist as an individual, the present-day drug manufacturer may attribute the birth of his business, usually it comes under the heading of progress and need.

Across one end of this back room there would be a counter-table, or compounding bench, at which the actual work of rolling pills, mixing powders, liquids, and salves was carried on, and the ingenious implements necessary for these procedures were found here. A pair of scales, the most important implement of all to a pharmacy, was within immediate reach. In this particular time scales were usually hung from the ceiling, and were placed somewhat above the counter.

On shelves above, or on the counter, were the various graduates, mortars and pestles, measuring jars requisite for compounding, plus the bottles of various shapes and sizes used as containers.

THE PRESCRIPTION BOTTLES

The subject of prescription bottles of olden times is quite interesting. I recall seeing in 1929 in the Dorotheum in Vienna (the Government-owned and controlled pawn shop), a collection of approximately four hundred bottles used in pharmacies during the fourteenth, fifteenth and sixteenth centuries, as medicine containers. There was no regularity of size, shape or content; standardization was to come with modern improvement later, but it was as fine a collection of Bohemian, Italian and Greek glass as one would ever see anywhere. All were of hand-poured and hand-moulded glass, no austere rigid straight lines, no pointed corners, all was well rounded, and done by hand. There was no conformity to a type; each was different, no two were alike,

*A Twenty-Five Years Ago column, made up of excerpts from the official journal of the California Medical Association of twenty-five years ago, is printed in each issue of CALIFORNIA AND WESTERN MEDICINE. The column is one of the regular features of the Miscellany Department, and its page number will be found on the front cover.